

REMARKS

Reconsideration of the above-mentioned reissue patent application is hereby requested in view of the above amendments, additional claims, and remarks which follow.

The Examiner rejected all then pending claims under 35 U.S.C. §251 as relying upon a defective Reissue Oath or Declaration, and has suggested new language which overcomes this rejection. Applicants have included herein, a re-executed Supplemental Declaration including the language suggested by the examiner.

The Examiner has also indicated that the original letters patent or an affidavit as to the loss or inaccessibility of the original patent must be received before this reissue application can be allowed. The original or affidavit will be supplied under separate cover.

The Examiner has also rejected Claims 19-34, 38-45 and 49-54 under 35 U.S.C. §103(a) under a combination of four references, Roberts (U.S. Patent 3,760,334); Henschen, et al. (U.S. Patent 3,663,930) in view of Chau, et al. and Martens (U.S. Patent 4,582, 386).

Roberts (U.S. Patent 3,760,334) discloses receptacle and plug connectors including a plurality of contact elements to interconnect a plurality of cables. The two electrical connectors provide an interconnection as shown in Figures 4 and 5 to interconnect twisted pair cables 8, 10.

Henschen, et al., (U.S. Patent 3,663,930) shows disengageable connectors where one connector part has a channel shaped female pin 4 which projects out of its associated housing beyond end face 91 (see Figure 4a) to interconnect with a mating contact 2. This contact 2 includes

springs 16, 18 positioned between side walls 22 and a forward web 12.

Martens (U.S. Patent 4,582,386) shows a connector with one or more contacts, where some contacts are enlarged to handle larger currents. The male power contacts 41 are tab style contacts of a single thickness of material, as shown in Figures 5a, 5b.

Chau et al. shows a printed circuit board connector having a housing with a printed circuit board slot at 46. Chau et al. shows both signal 50, 52 and power 58, 58a contacts positioned on opposite sides of the slot 46. Each of the signal and power contacts are discrete contacts, that is, each contact on opposite sides of the printed circuit board slot 46 are discrete from its opposed contact in the same position. In this way, each of the contacts, particularly the power contacts, contact separate pads on opposite sides of the printed circuit board, but are not interconnected to each other.

For numerous reasons, Applicants respectfully disagree with the Examiner's rejection of claims 19-34, 38-42 and 47-54 (Claims 35-37, and 43-46 are cancelled) under 35 U.S.C. §103(a).

Firstly, Applicants question the viability of the Roberts and Henschen, et al. contacts for use with power. The Examiner indicated that both Roberts and Henschen, et al. show first and second electrical connectors having first and second power contacts. Applicants can find no reference to the fact that these connector contacts are used for power, and the discussion within the patents themselves would suggest otherwise.

Roberts for example discusses in Column 7, lines 60-68, that this particular connector is used for interconnecting

twisted pair conductors of telecommunications cable. Thus Figure 1 of Roberts merely shows a spliced connection of two cable ends. Nowhere are power contacts discussed.

Henschen, et al. on the other hand discusses printed daughter board connectors that are spaced apart by a distance of 0.050 inches (column 1, line 10). Furthermore, in column 3, lines 42-46, Henschen, et al. indicates that the contact terminals in accordance with the invention are manufactured from an extremely thin stock, for example, 0.004 inches in thickness. Thus it is questionable whether such small contacts having such thin material stock could be used in a power distribution application similar to that anticipated and claimed by Applicants. Finally with respect to Henschen, et al., as shown in Figure 6, the connector is shown as having wall portion 34 being positioned against inside surface 62 of the housing (and discussed in column 4, lines 14-16); whereas power contacts cannot be supported by a housing.

Secondly, Applicants believe that there is no teaching or suggestion in any of the references for their combination. As noted in In Re Gorman, the Fed Circuit indicated that:

it is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicants' structure as a template in selecting elements from references to fill the gaps. *Interconnect Planning*, 774 Fed. 2d at 1143, 227 USPQ at 551. The references themselves must provide some teaching whereby the applicants' combination would have been obvious. 18 USPQ 2d 1885, at 1888.

As mentioned in Applicants' specification, and as supported by Applicant's claim terminology, Applicants' design provides power contacts which are profiled to accept larger currents and to enhance heat dissipation, whereas Henschen, et al. would preclude an adequate power connection and preclude

heat dissipation if used for power contacts. That is, its small mass and the fact that it is in contact with an insulative material would detract from its heat dissipation capabilities. Therefore the combination of Roberts and Henschen, et al. together with Chau, et al. and Martens cannot render Applicants invention obvious. While Chau, et al. and Martens discuss having separate signal and power contacts, there is absolutely no suggestion in any of the references to the combination of these four references. More particularly, there is no suggestion to provide the connector having both power contacts and signal contacts, where the power contacts are profiled according to claims 19-34, 38-42 and 47-54. Thus, Applicants believe that there is no motivation to the combination whatsoever.

In fact, Applicants believe that the references actually teach away from their combination. Martens shows a power tab contact, together with signal contacts. Roberts shows a subminiature-D style connector assembly where all contacts are of uniform size, and are used for interconnecting telecommunications cables. Chau et al. shows a printed circuit board style connector, where opposed power and signal contacts contact printed circuit board paths on opposite sides of a printed circuit board. Finally, Henschen et al. teaches making a connector profile as small as possible, with 0.004" of material stock and on 0.050" center line spacings. Certainly, this teaching could not suggest the provision of a contact which is larger in profile than the associated signal contacts. This would be a direct contradiction to its teaching.

Notwithstanding the above mentioned arguments, Applicants have submitted amendments for claims 19, 23 and 30 to better clarify Applicants' invention. In claims 19 and 30,

Applicants have included the limitation that the power contacts have contact fingers which extend from the body portion of the power contact in a cantilevered manner. This allows for their resiliency upon mating with the corresponding power contacts. Even if the references used in the rejection by the Examiner, namely the combination of Roberts, Martens, Henschen, et al. and Chau, et al. is taken, claims 19 and 30 are allowable over this combination. None of these references even in combination show a connector system having both signal and power contacts, where the power contacts are comprised of contact fingers cantilevered from a base section which are receivable in a mating power contact having opposed contact sections in a mating connector housing.

Furthermore, claim 23 was amended to include the limitations that the first electrical connector has a shrouded housing portion surrounding the at least one power contact, and that the second electrical connector has a housing complementary with the first electrical connector, which receives the shrouded housing portion and the at least one power contact therein. Once again, even if the combination of Roberts, Martens, Henschen, et al. and Chau, et al. is made, the combination does not obviate the limitations of claim 23.

No amendments have been made to claim 27, as Applicants believe that claim 27 is allowable over the combination of Roberts, Martens, Henschen, et al. and Chau, et al. Claim 27 indicates that a first power contact has a body portion with opposed contact fingers extending therefrom, thereby providing a surface area sufficiently broad to radiate heat resulting from electrical power dissipation. Furthermore, a second power contact has opposed contact surfaces thereby also providing a surface area sufficiently broad to radiate heat resulting from electrical dissipation.

While Chau, et al. does show a combination of both signal and power contacts, none of the references show power contacts as claimed by Applicants. Furthermore, Applicants believe that Henschen, et al. actually teaches away from its use as a power contact. As mentioned above, Henschen, et al. is manufactured from extremely thin stock, which is 0.004 inches in thickness and is anticipated for the centerline spacing between adjacent contacts of 0.050 inches. Due to this delicate nature of the contact, Henschen suggests the addition of a U-shaped section 6 at the end of spring members 16 and 18. Due to the construction of the Henschen, et al. spring contacts, the material from which they are used, and the placement of the contacts within the housing as shown in Figures 6 and 7, Applicants believe that the Henschen, et al. contacts teach away from their use in a power contact as described in claims in Applicants' present claim 27.

Applicants appreciate the Examiner's recognition of allowable subject matter in dependent claims 46-48, and Applicants have amended claim 38 to substantially include the limitations of claims 43-46 therein. Applicants have also amended the dependency of claims 47 and 48 to that of claim 38. Therefore Applicants believe that Claims 38-42 and 47-54 stand allowed.

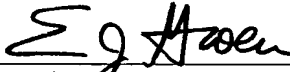
For all the foregoing amendments and remarks, Applicants believe the pending claim 1-34, and 38-42 and 47-54 are in condition for allowance and request early passage thereof.

Respectfully submitted,



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Signature

March 4, 2002

Date

VERSION WITH MARKINGS TO SHOW CHANGES MADE

19. (Amended) Mateable electrical connectors comprising:

a first electrical connector having an insulative housing which carries signal contacts and power contacts;

each power contact having a body portion and contact fingers extending therefrom in [an] a cantilevered and opposed relationship, the contact fingers further having resiliently deflectable bowed portions;

a second electrical connector having an insulative housing which carries mating signal contacts and mating power contacts for mating with the signal contacts and power contacts, respectively, of the first electrical connector;

the mating power contacts receiving the contact fingers of the power contacts of the first connector therein, whereby the cantilevered contact fingers deflect inwardly upon mating.

23. (Amended) Mateable electrical connectors comprising:

a first and a second electrical connector having mateable signal contacts and at least one first power contact mateable with at least one second power contact;

the first power contact having opposed contact fingers extending from a first body portion and the second power contact having opposed contact surfaces;

the first electrical connector having a shrouded housing portion surrounding the at least one power contact;

the second electrical connector having a housing complementary with said first electrical connector, thereby receiving the shrouded housing portion and the at least one power contact therein;

wherein the opposed contact fingers of the first power contact are received between the opposed contact surfaces of the second power contact such that the contact fingers resiliently deflect inwardly and exert pressure on the opposed contact surfaces.

30. (Amended) An electrical connector comprising:

an insulative housing carrying signal contacts and power contacts,

the power contacts having opposed contact fingers which extend from a body portion in a cantilevered manner, the opposed contact fingers being inwardly deflectable upon mating within a mating power contact of a mating electrical connector,

wherein the power contacts have a surface area greater than a surface area of the signal contacts in order to effectively radiate heat resulting from electrical power dissipation.

38. (Amended) An electrical connector assembly, comprising:

a first electrical connector comprised of an insulative housing having a front mating face with both signal contacts and power contacts positioned within the housing, the signal contacts being positioned within the housing with mating

contact portions adjacent said front mating face, and said power contacts being profiled as male contacts having a contact section comprised of opposed contact arms interconnected along a side edge thereof with at least one portion extending forwardly from each of said contact arms to define contact fingers positioned adjacent said front mating face; [and]

a second electrical connector profiled for mating with said first electrical connector, said second electrical connector including a housing complementary with said first electrical connector, and including signal and power contacts which are complementary with respective signal and power contacts of said first electrical connector, said power contacts of said second electrical connector being profiled as female contacts having contact portions profiled for overlapping engagement with said contact fingers of said first connector; and

wherein said first and second connectors each comprise a like plurality of rows and columns of contact receiving cavities having signal contacts positioned therein, said power contacts of said first and second connectors have greater mass than said signal contacts of said first and second connectors, and said power contacts of said first and second connectors are positioned in power contact receiving cavities which occupy the transverse envelope of a plurality of rows of signal contacts.

47. (Amended) The electrical connector assembly of claim [46] 38, wherein said opposed contact arms of the power contacts of said first electrical connector are formed as planar sections, substantially parallel to each other.

48. (Amended) The electrical connector assembly of claim [46] 38, wherein said female contacts of said second electrical connector are formed as planar sections, substantially parallel to each other.